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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,342	10/05/2004	Yukihiko Taguchi	018842.1319	8373
24735 7590 06/05/2008 BAKER BOTTS LLP C/O INTELLECTUAL PROPERTY DEPARTMENT THE WARNER, SUITE 1300 1299 PENNSYLVANIA AVE, NW WASHINGTON, DC 20004-2400				
EXAMINER WEINSTEIN, LEONARD J				
ART UNIT 3746		PAPER NUMBER		
NOTIFICATION DATE 06/05/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/510,342

Applicant(s)

TAGUCHI, YUKIHIKO

Examiner

LEONARD J. WEINSTEIN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment of March 17, 2008. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. US 2001/0003573 in view of Taguchi 5,332,365. Kimura teaches all the limitations as substantially claimed for a control valve for a variable displacement compressor, figure1, including: (claim 1) a displacement control valve 34 disposed at a position in a discharge pressure supply passageway 33 capable of communicating with a crank chamber 15 from a discharge chamber 23, a fixed orifice, the valve seat defined by element 59, provided at a position in a pressure relief passageway 58 communicating with a suction chamber 22 from said crank chamber 15, said displacement control valve 34 being controlled in opening/closing

operation to regulate a pressure in said crank chamber 15 to control a piston stroke (§0052-0053), a pressure sensing member 49 being expanded and contracted by sensing a pressure in said suction chamber 22 or said crank chamber 15, a valve element 43 one end, 43a of 43, of which is brought into contact with said pressure sensing member 51 and has a valve part 43c opening and closing a valve hole, the valve seat defined by element 55, formed in said discharge pressure supply passageway, 46 of 33, in response to an expansion/contraction of said pressure sensing member 51, a valve chamber 47 in which said valve part 43c is disposed and to which a pressure in said crank chamber 15 acts, via element 53, a partition wall, as shown in figure 2 or 7, disposed around said valve element 43 at a position in an axial direction of said valve element 43, a pressure chamber, area between elements 44 and 59 as shown in figure 4, partitioned from said valve chamber 47, and to which a pressure in said suction chamber 22 acts, via element 58, and a solenoid 42 provided to the other end, 43d of element 43, of said valve element 43 and capable of controlling an opening degree of said valve part 43c by an increase/decrease of an electromagnetic force (§0083-0084), and a pressure relief passage from said valve chamber 47 to said pressure chamber, area between elements 44 and 59 as shown in figure 4, formed in a gap, area created by the bore constituting element 47, inner circumference of element 59, and outer circumference of element 43, is defined between said partition wall, partition defined by valve seat of element 59, and said valve element 43 for forming a non-contact structure which does not give a sliding resistance, as can be seen in figure 2, relative to a movement of said valve element 43 in its axial direction; (claim 2) a gap, area created by bore constituting element 47 and inner circumference of element 59, forming the fixed orifice, figure 4; (claim 3) a partition wall 59 fixed at a valve casing side 41 of the displacement control valve 34, and the gap, area created by bore constituting element 47 and

inner circumference of element 59, is defined between an inner circumferential surface of the partition wall 59 and an outer circumferential surface of the valve element 43. Further in a third embodiment, as shown in figure 8, Kimura '573 teaches (claim 4) a valve for a variable displacement compressor having a partition wall 44b is fixed to the valve element 43, and the gap is defined between an outer circumferential surface of the partition wall 44b and an inner circumferential surface of a valve casing, 47 (Lower Region) of element 41 as shown in figure 8, of the displacement control valve 34. Kimura fails to teach the following limitation for a control valve for a variable displacement compressor that is taught by Taguchi wherein a pressure chamber, as defined by the chamber formed below element 482 is partitioned from a valve chamber, as defined by element 421a, by a fixed partition wall 482. A modification to Kimura would include a partition wall fixed an inner surface of a valve chamber 47, provided in an area within a valve chamber 47 just below a port 53 communicating with a crank chamber, and just above a moving plunger 44. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a fixed partition wall between a valve chamber and a pressure chamber in order to control a balance of pressure between a suction and crank chamber and controlling a displacement of a compressor (Taguchi col. 4 ll. 16-20).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. 2001/0003573 in view of Taguchi 5,332,365. A combination of Kimura and Taguchi teaches the invention as discussed wherein Kimura further teaches a control valve for a variable displacement compressor including a solenoid 42 having an electromagnetic coil 65 excited for generating an electromagnetic force, an iron core 44 for generating a magnetic force by excitation of said electromagnetic coil 65, a plunger 62 attracted and moved towards an iron core side 44c by the magnetic force of the iron core 44, and an end of a valve element, 43e of

element 43, being fixed to said plunger 62 which is held slidably in an axial direction of the valve element 43. A combination of Kimura and Taguchi, by further consideration of Taguchi teaches limitations not taught solely by Kimura including a control valve for a variable displacement compressor wherein a plunger 451 is attracted to a fixed iron core 412 due to a magnetic force, and a gap 412a defined between a fixed iron core 412 and a valve element 460 forming a non-contact structure which does not give a sliding resistance relative to a movement of the valve element 460 in its axial direction. The end of the valve element 460 is a non-magnetic component, element 484, that is in integral communication with the main valve element, rod 481, of the control valve taught by Taguchi. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the iron core 44 of Kimura to be a non-magnetic plunger connected to a valve element 43 and modify the solenoid to have a fixed iron core in between a plunger connected to an upper portion of the valve element and a plunger connected to the lower end of the valve element to provide a control valve that can quickly reduce a pressure in a crank chamber of a variable displacement compressor without damaging the internal components of a variable displacement compressor (Taguchi col. 3 ll. 64-68).

Response to Arguments

3. Applicant's arguments filed March 17, 2008 have been fully considered but they are not persuasive. With regards to the rejection of claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Kimura et al US 2001/0003573 in view of Taguchi 5,332,365, the applicant argues that Kimura does not teach a partition wall for a control valve for a variable displacement compressor wherein a gap is formed between the partition wall and a valve element for forming a non-contact structure. The applicant argues that Taguchi does not solve

the asserted deficiency of Kimura and as such a combination of the references would not teach the limitations as claimed.

With respect to applicant's argument that a combination of the Kimura and Taguchi would not teach a partition wall for a control valve for a variable displacement compressor wherein a gap is formed between the partition wall and a valve element, the examiner disagrees. The examiner first notes that the applicant has mischaracterized the examiner's basis for rejection. In the office action of December 31, 2007, it was set forth that Kimura taught "a pressure relief passage from said valve chamber 47 to said pressure chamber, area between elements 44 and 59 as shown in figure 4, formed in a gap, area created by bore constituting element 47, inner circumference of element 59, and outer circumference of element 43, is defined between said partition wall, partition defined by valve seat of element 59, and said valve element 43 for forming a non-contact structure which does not give a sliding resistance." Kimura was relied upon to teach a partition wall that formed non-contact structure but not one which separated a valve and pressure chamber. The examiner stated that Taguchi was used to teach a fixed partition wall that separates a valve chamber and a pressure chamber and that a modification to Kimura would include a partition wall fixed an inner surface of a valve chamber 47, provided in an area within a valve chamber 47 just below a port 53 communicating with a crank chamber, and just above a moving plunger 44. The applicant argues that Taguchi does not teach such a gap, as a rod is disposed so as to slide within a partition wall and there being no gap formed between the two elements. The examiner points out that the wall of Taguchi is disposed around a bottom section of a rod and functions in part to keep a rod 481 aligned within a pressure chamber. Forming a larger bore in the partition wall of Taguchi would not affect a function of a pressure chamber because the pressure chamber is already in

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communication with a suction chamber via radial ports 427 of the control valve, and the radial holes 482b in fixed partition plate 482. It would not be a practical to make a larger bore 482a in the partition plate of 482 accepting rod 421 because the bore 482a functions in part to align the rod and guide its movement, however the examiner notes that Taguchi was not relied upon to teach such a not contact surface. Altering Kimura to include a fixed partition wall as taught by Taguchi would not necessitate providing a wall that surrounds and aligns a valve element/rod 43 of Kimura because element 44 already acts to guide the valve rod 43. Thus modifying Kimura to have a fixed partition wall would involve extending the section of the bore defining the chamber of element 47 in an area near the valve seat 59 radial inward but not to a point where wall came to be in sliding engagement with the outer circumference of valve rod 43.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit
3746

/Leonard J Weinstein/
Examiner, Art Unit 3746